white throat-patch as in *natalensis*, lower throat and chest only slightly tinged with rufous; belly paler than back. Nape darker than in *natalensis*, the hairs where the nape-patch fades into the back markedly ringed dark slate and ochraceous. Marked patch on face above the nostrils ash- or mouse-grey, this patch almost indiscernible in true *natalensis* and limited to a short median line, 10–15 mm. broad, in *amœnus*.

Dimensions of an adult male from the Gorongoza District, Portuguese East Africa :—

Head and body 850 mm.; tail 121; hind foot 197 (? 207); ear 85.

Skull: greatest length 168; basal length 148; palatal length 35; zygomatic breadth 74; nasals 58; upper molar series 46.

The type locality is given as Portuguese East Africa by Mr. Rothschild. The specimen described above is almost an absolute topotype of Dr. Trouessart's type of *vassei*.

Cephalophus natalensis bradshawi, subsp. n.

Size as in *robertsi*. General colour pale tawny ochraceous, much paler and yellower than even *robertsi*. White throat-patch as usual, but all the rest of the throat, chest, inner side of fore limbs, and belly almost white, only slightly tinged with rufous. Nape-patch somewhat more developed than in *robertsi*. Grey patch on lower face even more marked than in *robertsi*.

Dimensions :—

No body-measurements were recorded by the collector, but almost certainly these are the same as in *robertsi*.

Skull: greatest length 163 mm.; basal length 144; palatal length 86; zygomatic breadth 70; nasals 56; upper molar series 45.

Distribution. Nyasa (type from Chiromo, Shire River).

Type. Very old female. B.M. no. 11. 6. 16. 1. Collected by Major C. P. Bradshaw on the 27th October, 1910, and presented to the Natural History Museum.

XXXVIII.—*On the so-called new Tipulid Subfamily* Ceratocheilinæ, *Wesché*. By F. W. Edwards, B.A.

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On reading the late Mr. Wesché's paper (J. Linn. Soc., Zool. xxx. 1910, p. 358) in July of last year, the writer was struck by the resemblance of the figures of the rostrum of

the genus *Ceratocheilus* to what is found in *Toxorrhina*. No further notice was taken of this resemblance at the time, and no comparisons were made with the descriptions of *Toxorrhina*. Early in the present year, however, the writer had occasion to examine carefully Dr. Speiser's description of *Styringomyia cornigera* (Berlin. ent. Zeit. lii. 1907, p. 130), and a suspicion at once arose that this species was related to *Ceratocheilus*. This suspicion was confirmed by a re-reading of Wesché's paper, while an examination of the types in the British Museum showed that a considerable amount of confusion of names had arisen, which required clearing up.

The first thing that was evident from this examination was that the type specimens of *Ceratocheilus winnsampsoni* agreed so closely with the description of *Styringomyia cornigera* as to leave no room for doubting that the two names applied to one and the same species. The name *Styringomyia* is evidently wrongly applied to *cornigera*, for Loew in his original description of the genus (Dipt. Beit. i. p. 6) says "proboscis brevis," while the figures of the wing given by Loew and Osten-Sacken show a considerable divergence from the neuration of *S. cornigera*, though it is true there is a certain general resemblance. Fortunately the writer has seen a large number of recent examples of the last-named genus, and there is clearly no close relation between it and *Ceratocheilus*.

An examination was next made of the types of *Neoceratocheilus*, and it was found that in neuration and in the structure of the head, antennæ, thorax, legs, and abdomen there was nothing to separate this genus from *Toxorrhina*. The only noticeable difference is that in *N. grahami* the great cross-vein is placed before the base of the discal cell. This character cannot be regarded as generic, and is exhibited also by *T. cisatlantica*, Speiser. *Neoceratocheilus grahami* is evidently closely allied to *T. cisatlantica*, but differs in the dark halteres, those of the latter species being described as white. Wesché, in his description of *Neoceratocheilus*, omits to mention that the antennæ are twelve-jointed in both sexes (as in *Toxorrhina*), and he incorrectly states that the head has "a flat plate inserted at the dorsal base of the proboscis." This latter feature is peculiar to the genus *Ceratocheilus*; it is not found in the related genera *Toxorrhina* and *Elephantomyia*, nor in the genus *Styringomyia*; it is, in fact, one of the most important diagnostic characters of *Ceratocheilus*. This very remarkable structure has been well described by Speiser, who speaks of it as a *corniculus*;

Weseh é also figures it. *Ceratocheilus* is further distinguished from *Toxorrhina* by the presence of a rudimentary second vein, and by the further reduction in the number of joints of the antennæ; from *Elephantomyia* by the form of the second vein and the number of antennal joints. The antennal joints are difficult to count, but in the male *Ceratocheilus* they appear to me to be 10 in number, not 8 as stated and figured by Weseh é. There is no close relationship either with *Ptychoptera* or *Gynoplistia*, which Weseh é suggested.

The discovery of the genus *Ceratocheilus* is of great interest as it affords a safe clue to the interpretation of the neuration of *Toxorrhina*. The second vein, already in a rudimentary state in the former, has evidently been completely suppressed in the latter genus, in which it is therefore not the submarginal, but the outer marginal cell which is absent. This explanation was suggested as a possible one by Osten-Sacken (Mon. Dipt. N. Am. iv. p. 112), who, if he had had the present material at his disposal, would doubtless have adopted it as the true one. The similar condition of the second vein in *Styringomyia* is probably due to parallel or convergent evolution, and not indicative of relationship.

All the known species of *Toxorrhina*, with the exception of *T. madagascariensis*, Meunier (Bull. Soc. Étud. Sci. Nat. Elbeuf, xxiv. 1906, p. 27), described from Madagascar copal, have hyaline wings, while the described *Ceratocheilus* have spotted wings. This suggests the possibility that *T. madagascariensis* may be a *Ceratocheilus*; the presence of a small second vein may easily have been overlooked. The fossil species of *Toxorrhina* (*Elephantomyia*) described by Loew may possibly belong to *Ceratocheilus*; but this is not probable. Osten-Sacken seems to think that they are true *Toxorrhina*; if Schiner was correct in saying that they possess a submarginal cell, they probably belong to *Elephantomyia*. A collection of Diptera in copal from the East African coast, in the British Museum, contains a number of specimens of *Elephantomyia*.

A short time after making the above discoveries the writer read Dr. Grünberg's description of his new genus *Idiophlebia* (Zool. Anz. xxvi. 1903, p. 527), and Dr. Speiser's of *I. crassicosta* (Berl. ent. Zeit. lii. 1907, p. 132), which seemed to apply to *Styringomyia*. Grünberg's description was compared with those of Loew and Osten-Sacken, with which it was found to tally completely. On looking through the accessions of Tipulidæ in the British Museum I found specimens of a *Styringomyia* from Burpengary, S. Queens-

land, collected by Dr. T. L. Bancroft, which were evidently *I. pallida*, Grünberg, while the single damaged specimen of *S. didyma*, Grimshaw ('Fauna Hawaiiensis,' iii. 1901, p. 10), seemed to belong to the same species. I wrote to Mr. Grimshaw suggesting the possibility, and he replied that he had for long believed that it was so; he also very kindly forwarded for my inspection a number of specimens of *S. didyma* received since the publication of his work. A comparison of these with the Queensland specimen and with the description of *I. pallida* removed all doubt as to their identity. This is the only known recent species of the genus (there are eight in the British Museum) in which the axillary vein is curved to the hind margin, not angulated. Grünberg points out distinctions in the neurations of *Idiophlebia* and *Styringomyia*, but these can really only be differences of interpretation and not of structure. The auxiliary vein, as noted by Grimshaw, is difficult to observe, and this would be quite sufficient to account for Loew's statement that it is absent; his specimens being enclosed in amber would naturally be even more difficult to examine. Loew's and Osten-Sacken's interpretation of the short vein connecting the first and third longitudinal veins as the terminal portion of the second seems nearer the truth than to call it, as Grünberg does, the marginal cross-vein. The first longitudinal vein can generally be distinguished along nearly the whole length of the wing, though it lies in close conjunction with the costa. Grünberg's figure has probably slightly exaggerated the distance between them. *Idiophlebia crassicosta*, Speiser, is a *Styringomyia*, and is more typical than *I. pallida*, as the auxiliary vein is less distinct and the subcostal enters into conjunction with the costal nearer the base of the wing. In this species, according to the author, "die ganze Flügelfläche ist dicht behaart"; Dr. Speiser, writing to me concerning this, says he may have meant that the usual microscopic hairs on the membrane of the wing are a little longer than in other Limnobiidæ, but it is no hairiness such as one sees, for example, in *Psychoda*. The palpi of *S. didyma*, Grimshaw, are figured as being six-jointed; this is, of course, a mistake, for which that author is not himself responsible.

I take this opportunity to describe a new species of the genus *Ceratocheilus*, which is represented in the British Museum by a single specimen (♀) taken 12. i. 1905 by Lt.-Col. Giles at sea, 6° N., 20 miles from the West African coast.

Ceratocheilus gilesi, sp. n.

Head dark grey. Thorax and abdomen almost uniform brownish ochreous, thorax without distinct markings. Wings entirely unspotted, not even darkened on the cross-veins; discal cell open, coalescent with second posterior cell; great cross-vein slightly beyond base of second posterior cell; second vein somewhat straighter and shorter than in *C. cornigerum*.

Length of body 5·5 mm.; rostrum 5; wing 4·5.

The open discal cell and hyaline wings of this species render it very distinct.

Summary.

The following species have been noticed in the preceding paragraphs:—

1. *Ceratocheilus cornigerum* (Speiser).
   Syn. *Styringomyia cornigera*, Speiser (1908).
   Ceratocheilus winnsampsoni, Wesché (1910).
2. *Ceratocheilus gilesi*, sp. n.
3. *Toxorrhina* (?) *madagascariensis*, Meunier.
4. *Toxorrhina grahami* (Wesché).
   Syn. *Neoceratocheilus grahami*, Wesché.
5. *Toxorrhina cisatlantica*, Speiser.
6. *Styringomyia didyma*, Grimshaw (1901).
   Syn. *Idiophlebia pallida*, Grünberg (1903).
7. *Styringomyia crassicosta* (Speiser).
   Syn. *Idiopheblia crassicosta*, Speiser.

XXXIX.—*Descriptions and Records of Bees.*—XXXVIII.

By T. D. A. Cockerell, University of Colorado.

Megachile bicolor taiwana, subsp. n.

♀.—Differs from Indian *M. bicolor* as follows: abdomen not so broad at base; hair of pleura entirely pale, slightly yellowish, the general effect being pale yellowish grey; no fuscous hair near base of wings above; ventral scopa a little reddish subapically.